PROVIDENCE SEWAGE TREATMENT SYSTEM,
Fields Point Plant, Chemical House
Ernest Street
Providence
Providence County
Rhode Island

HAER No. RI-20-G

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
Mid-Atlantic Region
Department of the Interior
Philadelphia, Pennsylvania 19106

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PROVIDENCE SEWAGE TREATMENT SYSTEM:
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LOCATION:	East end of Ernest Street, Providence, Providence County, Rhode Island UTM: 19.301380.4629520 Quad: Providence, RI
DATE OF CONSTRUCTION:	1900-1901; remodeled 1930-34
ENGINEER:	Otis F. Clapp
PRESENT OWNER:	Narragansett Bay Commission 44 Washington Street, Providence, RI
PRESENT USE:	Undergoing renovation for maintenance activities.
SIGNIFICANCE:	The Chemical House was one of three buildings constructed in 1899-1900 during the original development of Fields Point for the treatment of sewage by the chemical precipitation process. The Chemical House played a primary role at the facility, because it was from this building that chemicals were introduced into raw sewage to begin the process.

DESCRIPTION:

The Chemical House (also known as the Blower Building) is located toward the western edge of the Fields Point sewage treatment plant operated by the Narragansett Bay Commission in Providence. It is a 2-1/2 story structure with exterior dimensions of approximately 103' by 38'. Foundations and floor are of concrete, exterior walls are of red brick. The gable roof and its wooden monitor are clad with composition shingling.

The structure of the long north and south exterior walls consists of brick piers that rise to the level of the corbelled cornice. On the interior, brick "knees" corbelled out from the tops of these piers support exposed wooden roof trusses. On the exterior, these piers divide each elevation into 9 symmetrically arranged vertical bays. The wall surfaces between piers are pierced by large window openings with bluestone sills. The upper windows of both elevations have broad segmental arches which originally spanned pairs of 9-light single sash, hinged at the bottom to open inward. On the south side, windows set in large semicircular openings originally fitted with 1/1 sash and "sidelights" illuminate the interior at ground floor level. On the north side, the lower story is marked by three small segmental-arched openings in each bay, all of which have been filled in. Centered in the north elevation is a three-level gable-roofed projecting pavilion or "porch", with tall, round-arched opening, corner pilasters, and corbelled cornice. On the west gable end, which features a corbelled cornice with partial returns, is a square, hipped-roofed brick unit of one room, above which is a large, filled-in window opening. The east gable end, which nearly abuts the adjacent incinerator building, retains a corbelled cornice, but its windows have been filled in.

The interior of the building is now essentially one large room, open to the rafters which are seated on wood plates positioned on top of the brick exterior walls. The room has a concrete floor, and the brick walls are painted gray. The interior of the monitor is paneled with vertical tongue-in-groove beaded board. At the east end is a closed room created by brick walls, above which is a platform on which a control panel is mounted. The southwest corner of the building is also partitioned with brick walls into two spaces, one for storage, the other to contain air filters. The floor of the building was, until March, 1989, occupied by five large air compressors or blowers, each bearing a manufacturer's plate reading "Roots Connersville Blower Corp.".

The interior of the Chemical House was originally divided into three levels: a concrete ground level, a second level with wood floor carried on cast-iron columns and steel I-beams, and a "loft" level, carried on the lower chord of the roof trusses, consisting of a wooden T-shaped catwalk that extended longitudinally (east to west), the "stem" being a short segment leading into the "porch" on the north side. The removal of these levels occurred in 1930-34, when the building's function was completely changed as a result of the conversion of Fields Point from the chemical precipitation to activated sludge process.

HISTORICAL INFORMATION:

The Chemical House was constructed in 1899-1900 as an integral component of Providence's then-new sewage treatment plant at Fields Point, which was put into service in April, 1901. It was built from designs generated in the office of the City Engineer under Otis F. Clapp. The building is one of two remaining structures that date from the original construction of the facility, and is directly associated with the chemical precipitation process that was used to treat sewage here from 1901 until the conversion of the plant to the activated sludge process in 1930-34.

As the name suggests, chemical precipitation was a process by which chemicals (in this case lime and ferrous sulfate) were added to raw sewage to facilitate deposition of solids. The chemicals formed a precipitate, carrying suspended and colloidal matter, which was settled out in tanks. Thus, the Chemical House represented the first step in the original treatment process used at Fields Point. The Chemical House was designed to receive and store the lime and ferrous sulfate, mix appropriate portions of each together, and, via drains, introduce the chemicals into the raw sewage entering an open "mixing channel". This channel extended past the south side of the building and was fed with sewage from the 88-inch main from the Ernest Street Pumping Station.

In the building, the ground level, which included a tool room created by a stud partition across the east end, contained concrete mixing vats and steel mixing tanks, in the latter of which compressed air was used to reduce the chemicals to solution. The chemicals (prior to mixing) were stored on the second level in large wooden bins approximately 10 feet high.

The chemicals were brought in railroad cars along a rail line running along the north side of the building to the freight

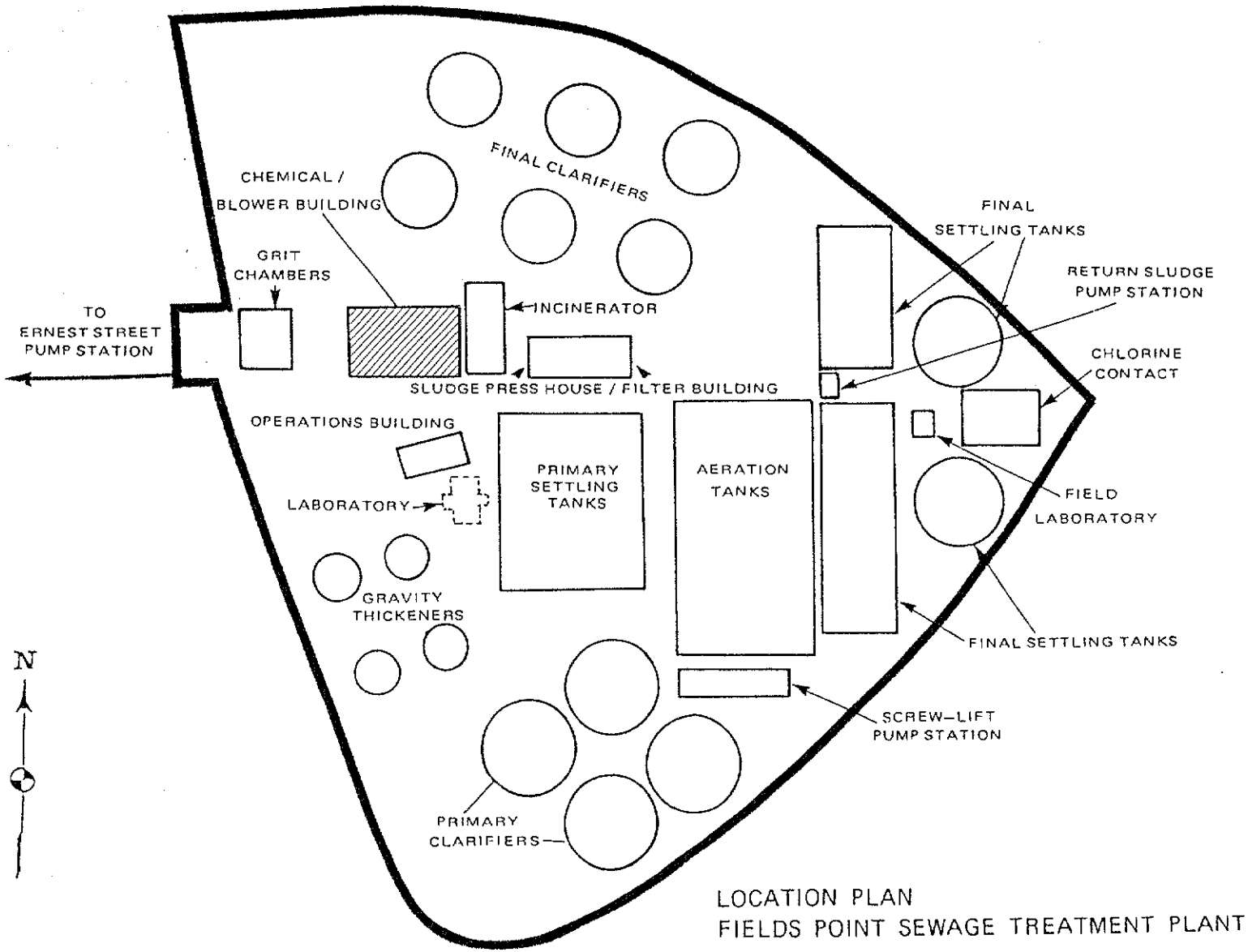
porch. At the time, the grade level on this side was about 7 feet above that on the south: thus the chemicals could be wheeled directly from the cars into the building for immediate use. If they were not to be so used, the chemicals were hoisted through a trap door in the upper level of the porch (corresponding to the third level of the building proper) and deposited in storage bins from a catwalk.

Eighty-six years after the Chemical House was put into service, its original floor level can still be identified, indicated by the pattern of fenestration, and the exterior design intent remains readily appreciable. The freight porch also remains, with its tall round-arched unloading entry, and the (now blind) oculi that once illuminated its upper level. The wooden roof trusses also remain. The use of this material rather than steel (the latter was used in the nearby Sludge Press House, erected at the same time) appears to be directly related to the building's original use: wood was not subject to corrosion or other deterioration from the presence of the chemicals. The small unit at the west end of the building, originally called the "weir room", is believed to have been associated with the conduits or drains through which the mixed chemicals were introduced into the sewage.

BIBLIOGRAPHY:

City Engineer, Providence, Annual Reports for 1899, 1900, 1901.Narragansett Bay Commission, Drawing Files, FP-139 through FP-146; FP-382 through FP-384.

Hardenbergh, W.H. Sewerage and Sewage Treatment (second edition). International Textbook Co., Scranton, PA, 1942.



LOCATION PLAN
FIELDS POINT SEWAGE TREATMENT PLANT

Sketch plan based on 'Fields Point Wastewater Treatment Facility Improvements,' no date. Source: Narragansett Bay Commission

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